

## Declaration For Utility Patent Application

As a below-named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention, the specification of which is attached hereto and which has the following title:

### ENERGY-CONSERVING APPARATUS AND OPERATING SYSTEM HAVING MULTIPLE OPERATING FUNCTIONS

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration.

I acknowledge a duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, Section 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Please address:

all phone calls to *Howard Hong-Dough Lee at: (248) 737-0133*  
all correspondence to *Howard Hong-Dough Lee*  
*4350 Derry Road*  
*Bloomfield, MI 48302*

Signature of Sole Inventor:



Full Name of Sole inventor:

*Howard Hong-Dough Lee*

Residence:

*4350 Derry Road*  
*Bloomfield, MI 48302*

Date: May 23, 2001

Citizenship: U.S.A.

## In the United States Patent and Trademark Office

Applicant: Howard Hong-Dough Lee

Title: ENERGY-CONSERVING APPARATUS AND OPERATING SYSTEM HAVING MULTIPLE OPERATING FUNCTIONS

### Small Entity Declaration-Independent Inventor

As a below-named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35 United States Code, to the Patent and Trademark Office with regard to the invention entitled ENERGY-CONSERVING APPARATUS AND OPERATING SYSTEM HAVING MULTIPLE OPERATING FUNCTIONS described in the specification filed herewith.

I have not assigned, granted, conveyed, or licensed-and am under no obligation under any contract or law to assign, grant, convey, or license-any rights in the invention to either (a) any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or (b) any concern which would not qualify as either (i) a small business concern under 37 CFR 1.9(d) or (ii) a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed-or am under an obligation under contract or law to assign, grant, convey, or license-any rights in the invention is listed below:

☒ There is no such person, concern, or organization.

☐ Any applicable person, concern, or organization is listed below:\*

Full Name: \_\_\_\_\_

Address: \_\_\_\_\_

I acknowledge a duty to file, in the above application for patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Signed: \_\_\_\_\_

Sole Inventor: \_\_\_\_\_

  
Howard Hong-Dough Lee

May 23, 2001

Date of Signature

\*Note: A separate Small Entity Statement is required from any listed entity.

**In the United States Patent and Trademark Office**

Appn. Number: \_\_\_\_\_  
Appn. Filed: May 23, 2001  
Applicant: Howard Hong-Dough Lee  
Appn. Title: ENERGY-CONSERVING APPARATUS AND OPERATING SYSTEM HAVING MULTIPLE OPERATING FUNCTIONS  
Examiner/GAU: \_\_\_\_\_  
GAU: \_\_\_\_\_

**Further Declaration in Support of Accompanying Petition to Make Special**

In support of the accompanying Petition to Make Special, applicant declares as follows:

1. I am the applicant in the above-identified patent application.

**2. The Purpose of The Above-Identified Patent Application:**

The invention of the above-identified patent application will materially result in substantial energy savings by eliminating any unnecessary energy waste inevitably associated with the conventional desktop or portable computer systems during the course of operation such as performing computation or process information (as detailed in prior Declaration in Support of Accompanying Petition to Make Special submitted on May 23, 2001) and microprocessors or central processor units.

**3. Energy Waste in Conventional Desktop and Portable Computer Systems:**

Nowadays, a computer is often designed to be able to enter several states such as a normal operating state, a standby state, a suspend state, and a shutdown state. In accordance with conventional practice, these states basically render a conventional computer either operable or inoperable in terms of processing information or performing computation. In the normal operating state, a conventional power supply outputs substantial energy for consumption in its host computer in order to perform information processing or to remain operable consistently. The normal operating function consumes substantial energy and requires assistance from cooling fans to dissipate heat generated from a CPU (or microprocessor) and other electronic elements, thus subsequently incurring unpleasant or annoying noise. The more powerful is the CPU, the more concern will be on heat dissipation and energy waste as well as annoying noise. Energy waste is particularly the most concerned issue for a notebook, laptop, or other portable computer when external AC power is not available.

In the shutdown state, a conventional computer is clearly inoperable and consumes no power or very little if a keyboard-power-on function is enabled. Although energy waste is eliminated, a computer placed in the shutdown state requires a tedious, time-consuming boot process to regain its normal operating function. On the other hand, the standby or the suspend state is provided for exiting the normal operating state temporarily in order to conserve energy. Both states are often referred to as the so-called sleep state in general. U.S. Patent No. 5,530,879 defines that as compared with the standby state, the suspend state conserves extra power by saving the activities of a computer to its hard-disk drive so as to deactivate a conventional computer further. In a newer version of Windows' operating systems, this approach is used in the so-called hibernation process, which requires a slightly longer time to restore the previous activities as compared with a regular boot

process. In contrast to the conventional practice, Applicant's pending application Ser. No. 09/293,089 filed on April 16, 1999 discloses an energy-conserving motherboard and computer each comprising keep-alive random access memory for saving previous activities thereto and thus rendering the energy-conserving computer instantly accessible from the suspend state. The so-called STR (i.e., Suspend To Ram) motherboards and the so-called IAPCs (i.e., instant accessible PCs or computers) currently produced are respectively the energy-conserving motherboard and computer disclosed in Applicant's pending application Ser. No. 09/293,089. While there are some differences in energy savings and quickness in returning to operation between the standby and the suspend states, a conventional computer placed into either state is deemed inoperable because information processing is basically ceased and requires a wakeup process to resume to the normal operating state.

#### **4. Energy Waste in Conventional Operating Systems:**

Similarly, although providing these different states, a conventional operating system allows a computer only to operate or not to operate. Again, the standby or the suspend state provided by the conventional operating system basically disables the normal operating function in order to accomplish energy conservation while offers a quicker return to operation as compared with the shutdown state or the hibernating state. In other words, the conventional operating system accomplishes some energy conservation by idling computation or disabling information processing. Essentially, neither state allows information to be processed or computation to be performed. Consequently, the selection between conserving energy and processing information is constantly in a dilemma, because there exists no other alternative in between. For example, a user has to go through a tedious, time-consuming boot process even if it is simply to play an audio CD. Once booted, the conventional computer entered the normal operating state has to consume substantial energy mostly wasted and to incur annoying noise in order to dissipate the heat generated from the energy wastes. At the end of playing, another tedious, time-consuming shutdown process is further necessary. In view of these inconvenience and disadvantages, a user is then forced to additionally purchase a standalone CD player for the same purpose of reproducing digital music. Another similar dilemma is to play a DVD in the conventional computer.

#### **5. Description of Energy Savings of The Above-Identified Patent Application:**

The invention of the above-identified patent application relates to energy-conserving apparatus and operating system having multiple operating functions, and more particularly to a computer power supply, a motherboard, a computer system, and an operating system for providing (1) an energy-conserving operating function to eliminate unnecessary energy waste and annoying noise, while allowing information processing to continue and extending the life of battery especially during the course of operation, and (2) an independent operating function to allow the energy-conserving apparatus to instantly, energy-conservatively, and noise-freely perform some operations (for instance, to play an audio CD or a DVD, or to duplicate information) without a tedious, time-consuming boot/shutdown process which is otherwise necessary in conventional practice.

Specifically, the invention of the above-identified patent application provides a computer power supply, motherboard, and computer system that are adapted in a manner for providing multiple operating functions. Of particular importance is an energy-conserving operating function that eliminates any unnecessary energy waste and annoying noise, while allowing information processing to continue, as opposed to (1) a conventional operating state that inevitably incurs substantial energy waste and annoying noise, and to (2) a conventional suspend state that idles and deactivates information processing essentially. Of another importance is an

operating system for selectively executing a power-down process to an energy-conserving operating function and a power-up process to a full operating function. The combination of the computer power supply, the motherboard, the computer system, and the operating system provides the following distinct exemplary advantages:

- (1) greatly extending the battery life of a notebook or laptop computer, as a result of eliminating unnecessary energy waste during operation,
- (2) eliminating any annoying noise as a result of substantial energy conservation that in turn eliminates the need of cooling, and
- (3) affording an independent operating function to allow a user to instantly, energy-conservatively, and noise-freely play an audio disc in a CD drive without booting up the computer system.

**6. The Impact of The Above-Identified Patent Application on Energy Savings:**

In view of the massive units of desktop, server, and portable computers, an enormous amount of energy waste will continue, since neither the conventional computers nor the conventional operating systems can conserve any energy during the course of operation.

It is thus for the first that the energy-conserving power-supply system, motherboard, computer system, and operating system of the above-identified patent application will eliminate unnecessary energy waste and annoying noise especially during the operation. In view of the massive units of computers, an enormous amount of energy savings will be quickly resulted should the present application be granted with Petition to Make Special.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made upon information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application and any patent issuing therefrom.

Very respectfully,



Howard Hong-Dough Lee  
Applicant

4350 Derry Road  
Bloomfield, MI 48302  
Mailed: May 23, 2001